

R307. Environmental Quality, Air Quality.**R307-335. Degreasing and Solvent Cleaning Operations.****R307-335-1. Purpose.**

The purpose of this rule is to limit volatile organic compound (VOC) emission from degreasing and solvent cleaning operations.

R307-335-2. Applicability.

R307-335 applies to all degreasing or solvent cleaning operations that use VOCs and that are located in PM10 and PM2.5 nonattainment and maintenance plan areas as defined in 40 CFR 81.345 (July 1, 2011) [~~Box Elder, Cache, Davis, Salt Lake, Tooele, Utah, and Weber counties~~].

R307-335-3. Definitions.

The following additional definitions apply to R307-335:

"Batch open top vapor degreasing" means the batch process of cleaning and removing grease and soils from metal surfaces by condensing hot solvent vapor on the colder metal parts.

"Cold cleaning" means the batch process of cleaning and removing soils from metal surfaces by spraying, brushing, flushing or immersing while maintaining the solvent below its boiling point.

"Conveyorized degreasing" means the continuous process of cleaning and removing greases and soils from metal surfaces by using either cold or vaporized solvents.

"Freeboard ratio" means the freeboard height (distance between solvent line and top of container) divided by the width of the degreaser.

"Industrial solvent cleaning" means operations performed using a liquid that contains any VOC, or combination of VOCs, which is used to clean parts, tools, machinery, equipment and work areas. Cleaning operations include, but are not limited to, spraying, wiping, ~~dipping,~~ flushing, and purging.

"Open top vapor degreaser" means the batch process of cleaning and removing soils from metal surfaces by condensing low solvent vapor on the colder metal parts.

"Separation operation" means any process that separates a mixture of compounds and solvents into two or more components. Specific mechanisms include extraction, centrifugation, filtration, and crystallization.

"Solvent metal cleaning" means the process of cleaning soils from metal surfaces by cold cleaning, open top vapor degreasers, or conveyorized degreasing.

R307-335-4. Cold Cleaning Facilities.

No owner or operator shall operate a degreasing or solvent cleaning operation unless conditions in R307-335-4(1) through (7) are met.

(1) A cover shall be installed which shall remain closed except during actual loading, unloading or handling of parts in cleaner. The cover shall be designed so that it can be easily operated with one hand if:

(a) The volatility of the solvent is greater than 2 kPa (15 mm Hg or 0.3 psi) measured at 38 degrees C (100 degrees F),

1 (b) The solvent is agitated, or

2 (c) The solvent is heated.

3 (2) An internal draining rack for cleaned parts shall be
4 installed on which parts shall be drained until all dripping ceases.
5 If the volatility of the solvent is greater than 4.3 kPa (32 mm Hg
6 at 38 degrees C (100 degrees F)), the drainage facility must be
7 internal, so that parts are enclosed under the cover while draining.
8 The drainage facility may be external for applications where an
9 internal type cannot fit into the cleaning system.

10 (3) Waste or used solvent shall be stored in covered containers. [
11 ~~Waste solvents or waste materials which contain solvents shall be~~
12 ~~disposed of by recycling, reclaiming, or by incineration in an~~
13 ~~incinerator approved to process hazardous materials.]~~

14 (4) Tanks, containers and all associated equipment shall be
15 maintained in good operating condition, and leaks shall be repaired
16 immediately or the degreaser shall be shutdown.

17 (5) Written procedures for the operation and maintenance of
18 the degreasing or solvent cleaning equipment shall be permanently
19 posted in an accessible and conspicuous location near the equipment.

20 (6) If the solvent volatility is greater than 4.3 kPa (33 mm
21 Hg or 0.6 psi) measured at 38 degrees C (100 degrees F), or if solvent
22 is heated above 50 degrees C (120 degrees F), then one of the following
23 control devices shall be used:

24 (a) Freeboard that gives a freeboard ratio greater than 0.7;

25 (b) Water cover if the solvent is insoluble in and heavier than
26 water); or

27 (c) Other systems of equivalent control, such as a refrigerated
28 chiller or carbon adsorption.

29 (7) If used, the solvent spray shall be a solid fluid stream
30 at a pressure that does not cause excessive splashing and may not
31 be a fine, atomized or shower type spray.

32 33 **R307-335-5. Open Top Vapor Degreasers.**

34 Owners or operators of open top vapor degreasers shall, in
35 addition to meeting the requirements of R307-335-4(3), (4) and (5),

36 (1) Equip the vapor degreaser with a cover that can be opened
37 and closed without disturbing the vapor zone. The cover shall be
38 closed except when processing work loads through the degreaser;

39 (2) Install one of the following control devices:

40 (a) Equipment necessary to sustain:

41 (i) A freeboard ratio greater than or equal to 0.75, and

42 (ii) A powered cover if the degreaser opening is greater than
43 1 square meter (10.8 square feet),

44 (b) Refrigerated chiller,

45 (c) Enclosed design (cover or door opens only when the dry part
46 is actually entering or exiting the degreaser),

47 (d) Carbon adsorption system, with ventilation greater than
48 or equal to 15 cubic meters per minute per square meter (50 cubic
49 feet per minute per square foot) of air/vapor area when cover is open
50 and exhausting less than 25 parts per million of solvent averaged
51 over one complete adsorption cycle;

52 (3) Minimize solvent carryout by:

- 1 (a) Racking parts to allow complete drainage,
- 2 (b) Moving parts in and out of the degreaser at less than 3.3
- 3 meters per minute (11 feet per minute),
- 4 (c) Holding the parts in the vapor zone at least 30 seconds
- 5 or until condensation ceases,
- 6 (d) Tipping out any pool of solvent on the cleaned parts before
- 7 removal, and
- 8 (e) Allowing the parts to dry within the degreaser for at least
- 9 15 seconds or until visibly dry.
- 10 (4) Spray parts only in or below the vapor level[7];
- 11 (5) Not use ventilation fans near the degreaser opening, nor
- 12 provide exhaust ventilation exceeding 20 cubic meters per minute per
- 13 square meter (65 cubic feet per minute per square foot) in degreaser
- 14 open area, unless necessary to meet state and federal occupational,
- 15 health, and safety requirements.
- 16 (6) Not degrease porous or absorbent materials, such as cloth,
- 17 leather, wood or rope;
- 18 (7) Not allow work loads to occupy more than half of the
- 19 degreaser's open top area;
- 20 (8) Ensure that solvent is not visually detectable in water
- 21 exiting the water separator;
- 22 (9) Install safety switches on the following:
- 23 (a) Condenser flow switch and thermostat (shuts off sump heat
- 24 if condenser coolant is either not circulating or too warm); and
- 25 (b) Spray switch (shuts off spray pump if the vapor level drops
- 26 excessively, i.e., greater than 10 cm (4 inches).
- 27 (10) Open top vapor degreasers with an open area smaller than
- 28 one square meter (10.8 square feet) are exempt from R307-335-5(2)(b)
- 29 and (d).

30 31 **R307-335-6. Conveyorized Degreasers.**

32 Owners and operators of conveyorized degreasers shall, in
33 addition to meeting the requirements of R307-335-4(3), (4) and (5)
34 and R307-335-5(5):

35 (1) Install one of the following control devices for conveyorized
36 degreasers with an air/vapor interface equal to or greater than two
37 square meters (21.5 square feet):

38 (a) Refrigerated chiller; or
39 (b) Carbon adsorption system, with ventilation greater than
40 or equal to 15 cubic meters per minute per square meter (50 cubic
41 feet per minute per square foot) of air/vapor area when downtime covers
42 are open, and exhausting less than 25 parts per million of solvent,
43 by volume, averaged over a complete adsorption cycle.

44 (2) Equip the cleaner with equipment, such as a drying tunnel
45 or rotating (tumbling) basket, sufficient to prevent cleaned parts
46 from carrying out solvent liquid or vapor.

47 (3) Provide downtime covers for closing off the entrance and
48 exit during shutdown hours. Ensure that down-time cover is placed
49 over entrances and exits of conveyorized degreasers immediately after
50 the conveyor and exhaust are shut down and is removed just before
51 they are started up.

52 (4) Minimize carryout emissions by racking parts for best

1 drainage and maintaining the vertical conveyor speed at less than
2 3.3 meters per minute (11 feet per minute).

3 (5) Minimize openings: Entrances and exits should silhouette
4 work loads so that the average clearance (between parts and the edge
5 of the degreaser opening) is either less than 10 cm (4 inches) or
6 less than 10% of the width of the opening.

7 (6) Install safety switches on the following:

8 (a) Condenser flow switch and thermostat - shuts off sump heat
9 if coolant is either not circulating or too warm;

10 (b) Spray switch - shuts off spray pump or conveyor if the vapor
11 level drops excessively, i.e., greater than 10 cm or (4 inches); and

12 (c) Vapor level control thermostat - shuts off sump level if
13 vapor level rises too high.

14 (7) Ensure that solvent is not visibly detectable in the water
15 exiting the water separator.
16

17 **R307-335-7. Industrial Solvent Cleaning.**

18 (1) Exemptions. The requirements of R307-335-7 do not apply
19 to aerospace, wood furniture, shipbuilding and repair, flat wood
20 paneling, large appliance, metal furniture, paper film and foil,
21 plastic parts, miscellaneous metal parts coat and light autobody and
22 truck assembly coatings, flexible packaging, lithographic and
23 letterpress printing materials and fiberglass boat manufacturing
24 materials.

25 (2) Operators of industrial solvent cleaning that emit 15 pounds
26 of VOCs or more per day, before controls, shall reduce VOC emissions
27 from the use, handling, storage, and disposal of cleaning solvents
28 and shop towels by implementing the following work practices:

29 (a) Covering open containers; and

30 (b) Storing used applicators and shop towels in closed fire
31 proof containers.

32 ([2]3) Owners or operators of industrial solvent cleaning
33 operations shall limit VOC emissions by either:

34 (a) Using cleaning solutions with vapor pressure less than or
35 equal to eight millimeters of mercury (mm Hg) at 20° C;

36 (b) Using solvents with a VOC content of 0.42 pounds per gallon
37 or less; or

38 (c) Installing an emission control system designed to have an
39 overall control efficiency of at least 85%.
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41 **R307-335-8. Emission Control Systems.**

42 (1) The owner or operator of a control device shall
43 maintain[provide] certification from the manufacturer that the
44 emission control system will attain at least 85% overall[required]
45 efficiency performance and make the certification available to the
46 director upon request.

47 (2) Emission control systems shall be operated and maintained
48 in accordance with the manufacturer recommendations to maintain at
49 least 85% overall efficiency performance. The owner or operator shall
50 maintain for a minimum of two years records of operating and
51 maintenance sufficient to demonstrate that the equipment is being
52 operated and maintained in accordance with the manufacturer

1 recommendations.

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3 **R307-335-9. Recordkeeping.**

4 The owner or operator shall maintain, for a minimum of two years,
5 records of the solvent VOC content applied and the physical
6 characteristics that demonstrate compliance with R307-335.

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8 **[R307-335-9. Solvent Containing Waste Disposal**

9 ~~Waste solvents or waste materials that contain solvents shall be~~
10 ~~disposed of by recycling, reclaiming or by incineration in an~~
11 ~~incinerator approved to process hazardous materials or by an alternate~~
12 ~~means approved by the director.]~~

13 **R307-335-10. Compliance Schedule.**

14 (1) All sources within Salt Lake and Davis counties shall be
15 in compliance with R307-335-3 through R307-335-6 and R307-335-8[~~this~~
16 ~~rule~~] upon the effective date.

17 ([~~1~~]2) All other sources defined in R307-335-2[~~in Box Elder,~~
18 ~~Cache, Tooele, Utah, and Weber counties~~] shall be in compliance with
19 all sections of[~~with~~] this rule by September 1, 2013.

20
21 **KEY: air pollution, degreasing, solvent cleaning[, ~~ozone~~]**

22 **Date of Enactment or Last Substantive Amendment: [January 16,**
23 **2007]2012**

24 **Notice of Continuation: February 1, 2012**

25 **Authorizing, and Implemented or Interpreted Law: 19-2-104(1)(a)**